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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR		ATTORNEY DOCKET NO.
09/084,787	05/21/98	HARASAWA	S	FUJH13.010A

HELFGOTT AND KARAS
EMPIRE STATE BUILDING
60TH FLOOR
NEW YORK NY 10118

PM82/0927

EXAMINER	
MOSKOWITZ, N	
ART UNIT	**PAPER NUMBER**
3662	28

DATE MAILED: 09/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/084,787	HARASAWA ET AL.	
	Examiner	Art Unit	
	Nelson Moskowitz	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. Applicants' letter received July 3, 2001, has been made of record and the amendments to the claims have been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 15-19 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' disclosure of the prior art (Fig. 15 and pages 3-4 of the instant specification) or Aida et al, when taken with Heidemann ('109).

In determining obviousness, the following factual determinations are made:

a. First, the scope and content of the prior art.

b. Second, the difference between the prior art and the pending claims.

c. Third, the level of skill of a person on ordinary skill in this art;

d. Fourth, whether other objective evidence may be present, which indicates obviousness or nonobviousness. See, e.g., *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 282 US 1, 17-18, USPQ 456, 466-67 (1966)).

Objective evidence includes long felt but unmet need for the claimed invention, failure of others to solve the problem addressed by the claimed invention, and not other factors. See, e.g., *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 Fed. 1573, 1574-76, 22 USPQ 744, 745-47 (Fed. Cir. 1984).

Examining the scope and content of the prior art one finds the following:

a. Applicants' discussion of the prior art presents a prior art optical amplifier with an input terminal receiving an optical signal, an optical coupler (10), a detector (11), and an optical fiber amplifier (2). Fig. 15 of Applicants' disclosure is identified as prior art and contains these components. In addition Applicants admit in the specification that this system included input signal monitoring wherein a detector was used to monitor the input signal by measuring the level of a portion thereof, and noise problems from, inter alia, pump light, appearing when the signal level was low. The prior art recognition of the problem of noise from pump radiation counter-propagating to the signal radiation and then impinging on the detector, is noted. This S/N deterioration is admitted to have made it very difficult for the prior art to accurately monitor high and low level input signals for the desired ALC control. Appellants' specification states that the prior art recognized the problem and found that it could not normally measure input power due to either mode of optical noise.

Therefore the prior art was well aware of the problem of pump radiation noise critically reducing the signal/noise ratio necessary for proper operation of the amplifier. Applicants have not contended to the contrary.

Aida et al similarly disclose signal input splitting and mounting so as to control pump power (see, inter alia, Fig. 1A).

b. Heidemann is directed to fiber optic amplifiers and is exemplary the use of an optical filters positioned immediately preceding the photodetector of an optical amplifier system to block pump radiation having passed through the amplifier. This pump radiation filtering clearly

provides a lower noise level and clearer and cleaner signal radiation data to the detector (1) which operates in an AGC mode to control pump power of the fiber optical amplifier.

While Heidemann is cited to show the use of filters to remove noise and pass only signals in a optical amplifier system, official notice is taken that optical filtering of optical noise prior to signal detection to improve S/N is very old and well known by artisans in this art technology. Applicants have not asserted to the contrary.

Secondly, under Deere, the difference between this prior art an the pending claims lies in the combination of an optical filter to the section leading from the coupler to the input detector of Aida or Applicant's disclosed prior art.

Third, under *Deere*, the level of ordinary skill in this art may be determined by the analysis of the Court as set forth in *Environment Designs Ltd. v. Union Oil Co.*, 713 F. 3d 693, 281 USPQ 865-69 (Fed. Cir. 1983) cert. denied, 464 1043 (1984), where the court listed factors relevant to a determination of the level of ordinary skill; type of problems encountered in the art, prior art solutions, rapidity of innovations, sophistication of technology, and educational level of active worker in the field.

The types of problems encountered in the art involve highly complex optics and quantum electronics, and how to provide inexpensive, accurate and reliable, noise reduction.

Innovation in this field has been very fast as can be seen from virtual birth of this field in the 1970s to its present highly complex and sophisticated status.

Prior art solutions include optical noise filtering. Skilled artisan generally have graduate level education and over seven (7) years of experience, as can be seen from published articles in the major journals in this field, e.g. IEEE Journal of Quantum Electronic, Optical Communications, Optics, etc.

To date, no secondary consideration (objective evidence) has been presented.

Therefore, as this prior art taught the need for pump radiation filtering and showed utilization of pump radiation filters in fiber optic amplifier systems to provide clean signals to detectors, the combination would have been obvious to one skilled in the art.

A further indication of the obvious matter nature of the foresaid combination is the expectancy of the beneficial results from using the optical filter. This follows just as unexpected beneficial results would be evidence of unobviousness *Ex parte Novak*, 16 USPQ2d 2041 (Bd. Pat. App. Int. 1990).

As the aforesaid prior art is known by optical physicists to provide the respective benefits and improvements as set forth above, the physicist would have been led to make the obvious combination of these teachings in order to obtain the benefits this prior art taught and the artisan would typically readily recognize.

Although there is no explicit teaching to combine the aforesaid references, it is noted that an artisan would generally look to optimize optically signaling accuracy while maximizing the S/N. Such optimization ordinarily leads to better signal quality and lowered operation costs. This motivation to combine the prior art teachings to arrive at the claimed invention comes from

the knowledge of those skilled in the art and the nature of the problem solved, which problem Applicants admit is in the prior art. See *In re Dembiczak*, supra. Here motivation comes from both the nature of the problem solved and the basic knowledge of one of ordinary skilled in the art.

In response to Applicants' argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgement of obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicants' disclosure, such as reconstruction is proper. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reason to combine is the prior art known need for precise signal data and the known problem of pump radiation noise.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F. 2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants' argument that the combination of Heidemann and the admitted prior art would be inoperative is not cogent. It is immaterial whether or not a physical combination would

be operational, as it is the showing of Heidemann using optical filters to pass signals and filter out noise that an artisan would recognize and use in other optical systems.

It is a fundamental fact that using on optical filter positioned before a detector to filter out noise and transmit signals is well known in general, and certainly in the art. Applicants' mere application of the filter for this same purpose provides no novel or unexpected results and is obvious.

Applicants' arguments as to the differing purposes for the filter of Applicants and that of Heidemann is not relevant as it is the showing of using the filter to minimize pump noise that is applicable.

The Declarations by Applicants has been carefully considered and found not to be persuasive. Firstly, affiants are co-inventors of the claimed invention and their affidavits are therefore given less probative weight. Secondly, the affidavits are not directed to the combination of the teachings of the prior art, but are entirely directed to Heidemann and Aida individually .

4. **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

NELSON MOSKOWITZ
PRIMARY EXAMINER